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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/041,759      | 01/10/2002  | Uwe Glatzel          | 225MU/50807         | 3217             |

7590 11/01/2004  
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Washington, DC 20044-4300

EXAMINER

SHEEHAN, JOHN P

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1742

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/041,759

Applicant(s)

GLATZEL ET AL.

Examiner

John P. Sheehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 4 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bornstein et al. (Bornstein, PCT Document No. WO 93/24683, cited in the IDS submitted January 10, 2002 as reference AK).

Bornstein teaches a single crystal nickel based superalloy for use in gas turbine engines (page 1, lines 9 and page 2, lines 15 to 18). The alloy composition disclosed by Bornstein has a composition that overlaps applicants' claimed alloy composition (page 5, the table). Bornstein teaches that the turbine parts are made by simply casting the molten alloy as recited in instant claim 8 (page 4, lines 2 to 20 and Figure 1).

Applicants' claims and Bornstein differ in that Bornstein does not teach the specific proportions recited in the applicants' claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy proportions taught by Bornstein overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious

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to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

### ***Response to Arguments***

3. Applicant's arguments filed August 11, 2004 have been fully considered but they are not persuasive.

Applicants' arguments that Bornstein's alloys require the presence of Mg and/or Ca whereas new claims 19 and 20 are directed to an alloy that does not contain Mg or Ca are not persuasive. First, each of these claims employs the transitional phrase, “consisting essentially of”. The transitional phrase, “consisting essentially of” limits the scope of a claim to the specified materials or steps “and those that do not materially affect the basic and novel characteristic(s) of the claimed invention.”

When an applicant contends that additional materials taught by the prior art are excluded by the use of the transitional phrase, “consisting essentially of,” “applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention”, MPEP 2111.03. In an

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attempt to meet this burden applicants, citing sections of Bornstein, argue that the presence of Mg and/or Ca require the use of specialized casting techniques and that the instant specification "provides a clear indication that having an alloy that is easy to cast is one the basic and novel characteristics of the invention" (applicants' response, page 7) and therefore claims 19 and 20 preclude the presence of Mg and/or Ca. This is not persuasive. The sections of Bornstein cited by applicants are all directed to the special casting techniques required when Mg is used in Bornstein's alloy. However, no special casting techniques are required for Bornstein's alloy that contains only Ca and no Mg. Thus, while applicants' claims 19 and 20 preclude the presence of Mg, applicants' claims 19 and 20 do not preclude the presence of Ca as taught by Bornstein.

**Declaration by Dr. Thomas Mack Submitted February 4, 2004**

In their response applicants have addressed each of the Examiner's comments with respect to the declaration by Dr. Thomas Mack submitted February 4, 2004. The following are the Examiner's comments regarding applicants' response to the Examiner's comments in the order that they appear in the Office action mailed March 12, 2004 and in the applicants' response submitted August 11, 2004.

I. In the previous Office action the Examiner stated that with respect to the alloy compositions in Table 1 of the declaration, it is not clear that each of the listed alloys was actually prepared. For example, for alloy LEK94 there are listed low, high and norm proportions. It is not clear what this means. Was each of these versions of LEK94 actually prepared? If all three of the LEK94 alloys were prepared which one is

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referred to in Figures 1 and 9 of the declaration, the low, high or norm version of LEK94? In like manner, the same lack of clarity and the same questions exist with respect to Bornstein et al. and Nguyen-Dinh et al.'s low, high and norm alloys.

Applicants' attorney's statements regarding this point raised by the Examiner in the previous Office action are not persuasive. Applicants' attorney did not himself do the lab work in the preparation of the declaration and therefore cannot attest to:

- (1) Which alloys were actually prepared and which were not; nor
- (2) Which composition of LEK94 (high, low or nominal) was used in the preparation of Figures 1 and 9 of the declaration.

A statement by Dr. Mack in the form of a declaration would overcome points (1) and (2) above.

Further, applicants' attorney states that the density of the prior art alloys was calculated. These calculated density values are given little if any weight in that it is not clear how dependable the methodology is that applicants used nor how accurate the results are.

II. The alloy compositions representative of the instant invention (Table 1, Alloys SX2-SX6) are not commensurate in scope to the claimed invention. As drafted independent claims 1, 2, 8 and 18 place no limits on the amount of aluminum, chromium and cobalt, therefore these claims merely require the presence of aluminum, chromium and cobalt in any amount, which encompasses from a very minor amount, e.g. 0.0001wt% to a major amount e.g. 40 wt%. However, Alloys SX2-SX6 (Table 1 of the declaration) each contains aluminum, chromium and cobalt in very narrow ranges;

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Aluminum 6.23 to 6.42-wt%

Chromium 5.69 to 5.83 wt% and

Cobalt 7.2 to 7.35 wt%.

In view of this, the alloy compositions in the declaration representing the instantly claimed invention are not commensurate in scope to the claimed invention.

Accordingly, the data set forth in the declaration is not persuasive, MPEP 716.02(d).

Applicants' remarks regarding this point are persuasive with respect to applicants' dependent claims 5 and 12 but are not persuasive with respect to claims 1, 2, 4, 6 to 11 and 13 to 20. Applicants have pointed out that there are a number of example alloys in the declaration having compositions within the instantly claimed ranges. However claims 1, 2, 4, 6 to 11 and 13 to 20 merely require the presence of aluminum, chromium and cobalt in any amount, therefore these claims encompass alloys containing aluminum, chromium and cobalt in a very minor amount, e.g. 0.0001wt% to a major amount e.g. 49.99 wt%. However, there are no example alloys in the declaration that address this breadth of proportions for aluminum, cobalt and chromium, therefore the alloy compositions in the declaration representative of the instant invention (Table 1, Alloys SX2-SX6) are not commensurate in scope to the claimed invention, MPEP 716.02(d).

III. Applicants' response to the Examiner's comments in paragraph III (repeated below only for applicants' convenience) of the last Office action is persuasive.

In like manner, claims 2 and 18 place no limits on the amount of tungsten, therefore these claims merely require the presence of tungsten in any amount, which encompasses from a very minor amount, e.g. 0.0001wt% to a major

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amount e.g. 40 wt%. However, Alloys SX3-SX6 (Table 1 of the declaration) contain;

Tungsten 3.05 to 3.56 wt%.

In view of this, the alloy compositions in the declaration representing the instantly claimed invention are not commensurate in scope to the claimed invention. Accordingly, the data set forth in the declaration is not persuasive, MPEP 716.02(d).

IV. Regarding the alloy density it is the Examiner's position that, in view of the fact that the densities of alloys labeled Bornstein low, high and norm were calculated these calculated density values are given little, if any, weight in that it is not clear how dependable the methodology is that applicants used nor how accurate the results are. Accordingly, any arguments or discussions based on the calculated Bornstein alloy density data in turn is given little, if any, weight. The density data regarding Alloy Sxref which applicants' attorney stated was actually made is not persuasive for the reasons set forth above in the Examiner's comment I, the last paragraph. Further, none of Alloys SX1-A, SX1-B and SX1-C is encompassed by Bornstein's disclosure in that these alloys do not contain a minimum of 2.5% tantalum as required by Bornstein. In view of this, there are no alloys in Figure 2 representing Bornstein's alloys and thus the data in the declaration does not compare the claimed invention to the claimed invention to the closest known prior art, Bornstein, MPEP 716.02(e).

V. In the previous Office action the Examiner stated that applicants refer to Figure 2 of the declaration regarding alloy strength (declaration, page 4, applicants' response page 7, first full paragraph). The Examiner does not consider Figure 2 to be persuasive. Besides the Re content, the alloy composition of the alloys depicted in



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Figure 2 are not known, therefore it is impossible to evaluate the significance of the Figure 2. In view of the fact that the alloy compositions are not known, the results in Figure 2 may be have been caused by elements other than Re content.

The applicants' comments regarding this point have clarified the alloy composition for each of the data points in Figure 2. However, Figure 2 still is not persuasive in that none of Alloys SX1-A, SX1-B and SX1-C is encompassed by Bornstein's disclosure in that these alloys do not contain a minimum of 2.5% tantalum as required by Bornstein. In view of this, there are no alloys in Figure 2 representing Bornstein's alloys and thus the data in the declaration does not compare the claimed invention to the closest known prior art, Bornstein, MPEP 716.02(e).

VI. On pages 5 to 8 of the declaration applicants have drawn conclusions regarding Figures 3 to 6. It is not clear how applicants arrived at these conclusions. Figure 5 is given little if any weight in that the compositions of the alloys on which Figure 5 is based are not known.

Applicants' comment regarding this point is not persuasive in that it does not explain the basis for applicants' conclusions.

VII. On page 9 of the declaration it is not clear what the term, "the coating" refers to (Figure 9 and the text above Figure 9, line 3). Contrary to Dr. Mack's conclusion, that the LEK94 alloy (an alloy exemplifying the instant invention) is free of undesirable TCP needles the image depicting alloy LEK94 appears to have TCP just above the coating layer. This position by the Examiner is supported by the fact that

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lines emanating from between the two images of Figure 9 indicate the presence of TCP in each image.

Applicants' attorney's comments regarding this point would be persuasive if presented by Dr. Mack in the form of a declaration.

VIII. The discussions and conclusions on pages 8 and 9 of the declaration are based on alloy LEK94, a single embodiment of the claimed invention. In view of this, the Declaration is not considered to be commensurate in scope to the claims, *In re Dill* 202 USPQ 805 and MPEP 716.02(d). General superiority cannot be inferred from the results obtained using a single embodiment of the claimed invention, *In re Greenfield*, 197 USPQ 227, 230 and MPEP 2144.08 (B).

With respect to this point applicants urge that the declaration taken as whole provides examples of the superiority of the claimed invention. The Examiner is not persuaded in that for the reasons set forth above the other sections of the declaration are considered to non-persuasive. Thus, the applicants' discussion of pages 8 and 9 of the declaration is not persuasive in that it is based on a single example of the claimed invention.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

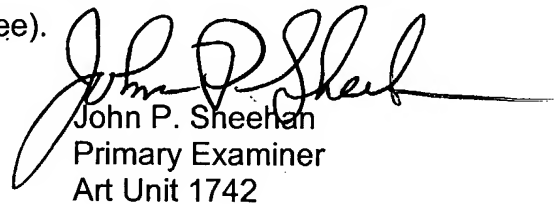
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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John P. Sheehan  
Primary Examiner  
Art Unit 1742

jps